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Breaking Down the Boundaries: Interdisciplinary and the Future of KM

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ABSTRACT

Knowledge Management continues to expand and increase in complexity, with Information Systems and other disciplines contributing to research in this field. This paper explores the present landscape of KM, illustrating how the current multidisciplinary approach to KM is problematic for moving the field forward cohesively due to the boundaries between disciplines. These boundaries are socially constructed through communicative processes and intimately connected with identity and power. This paper contends, using Complex Responsive Process theory, that an interdisciplinary approach focused on breaking down barriers between disciplines offers the opportunity to enhance knowledge generation. Envisioning KM as a boundary object between disciplines, rather than a discipline in itself, can help focus attention on negotiating commonality rather than entrenching difference. This paper challenges the IS community to recognize the boundaries between the disciplines working in the KM context and to cross those boundaries by engaging with scholars from other fields creatively.

Keywords

Knowledge Management, interdisciplinarity, boundary objects.

INTRODUCTION

Knowledge Management (KM) as an area of research came to the fore after the 1995 publication of Nonaka and Takeuchi's *The Knowledge Creating Company.* Following that publication the number of articles published in KM climbed dramatically, and has been holding steady for the last five years. While some questioned whether KM was just another management fad (Wilson, 2002; Ponzi and Koenig, 2002), the longevity of the field and publication statistics indicate it is of somewhat more importance. In fact, others are calling for it to be accepted as a fully-fledged discipline (Stankosky, 2005; Grossman, 2007). While the impetus seems to be toward establishing KM as an academic discipline, currently it appears to be more accurately termed a multidisciplinary field in the sense that topics and issues are explored from the perspective of a number of disciplines.

This paper contends, however, that KM as a field of interest to many disciplines provides an opportunity for blurring disciplinary boundaries and engaging in creative research in an interdisciplinary way. After considering the processes that demarcate disciplines, issues of identity and power are explored through the lens of Complex Responsive Process theory (CRP). A brief overview of the dominant themes of the KM literature reveals that many disciplines contribute to the field, but also indicates little interaction between academic disciplines. This paper explores some of the issues that have an impact on a multidisciplinary field and contends that the future of KM lies in interdisciplinarity, defined here as the "bringing together and interweaving [of] content, methods, and research strategies of various existing fields of study" (Payne, 1999, p. 176). The primary difference between multidisciplinarity and interdisciplinarity is exemplified by the term 'interweaving' and this paper argues that KM would benefit from scholars collaborating across their disciplinary boundaries.

A two-fold approach for breaking down disciplinary barriers is presented here. First, taking communication between disciplines as a key component of interdisciplinarity, this paper explores how CRP might assist communities to engage effectively. Secondly, it proposes that conceptualizing KM as a boundary object between disciplines rather than a discipline in itself enables a reconfiguration of the issues of power and identity that typically occur as a discipline is established.

Finally, this paper challenges the IS community to embrace interdisciplinarity and presents the advantages that this has not only for KM as a field, but for its application, positing a possible and positive future direction for the field.

DISCIPLINARY IDENTITY

Developing a new discipline is a complex process. Some evolve out of established fields, such as molecular biology from biology, while others emerge through the combination of existing fields, such as social psychology, the blending of sociology and psychology (Leggon, 2006). However they come into being, one of their key characteristics is legitimacy. The goal is for the discipline to conform to an accepted understanding of academic credibility, intellectual rigor, and appropriate subject matter (Leggon, 2006). In effect, a social contract is established between the academy and the proponents of the field. The proponents claim a theoretical framework and stern methodology as one criterion for the right to establish curricula. A second criterion that is used to enter into the academy as a department is the distinction of a new field from other disciplines (Leggon, 2006).

In effect, then, a new discipline must establish itself as a community of practice. The language adopted, the theories adhered to, and the issues wrestled with all contribute to the construction of a disciplinary identity (Leggon, 2006). Identity is shaped by inclusion or exclusion from various categories. Such categories are inevitable as the very means by which we communicate, language, relies on us naming or categorizing our experience, thus always deciding what belongs to one category and what does not (Stacey, 2001). In other words, we are continually drawing boundaries in the process of (co)constructing our identity. The identifying features of a community of practice (vocabulary, routines, codes of conduct and so on) work to establish the identity of the community by differentiating it from other communities, even to the extent that outsiders cannot participate in what its members do. Identity hinges on difference (Koskinen, 2005).

We use two kinds of logic in the process of constructing community identity. On the one hand, we follow a symmetric logic, stressing what we have in common and minimizing difference to establish the group identity (which is simultaneously our self identity). On the other hand, we employ asymmetric logic in that we focus on the differences of those outside the group, while obscuring any similarities we might have with them (Stacey, 2001). Accordingly, when an IS and a manufacturing department confront one another in a meeting they are defining themselves against each other, yet when the organization to which they both belong confronts a competitor, they will draw together under a different, common identity.

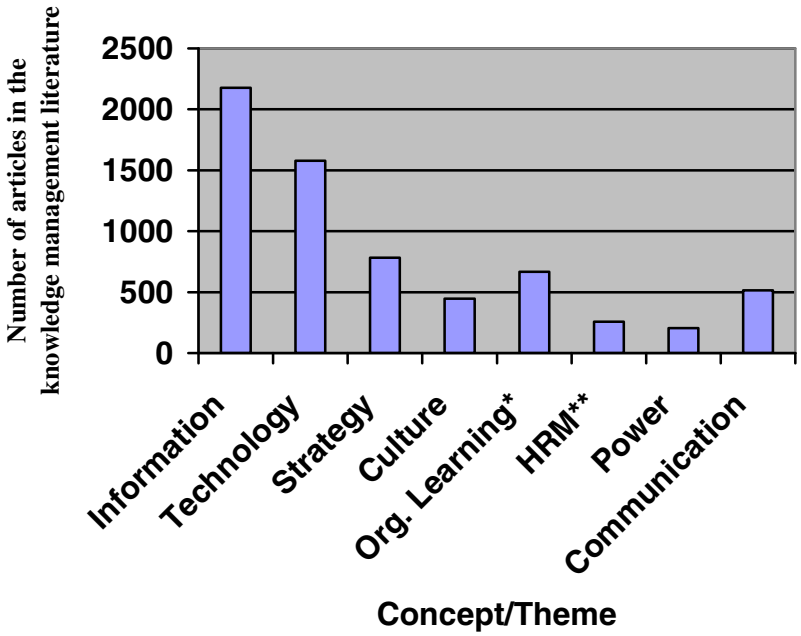
Issues of power are unavoidably linked with issues of identity. The communicative processes that establish identity are based on interdependence. We can only define our difference against an 'other'. We must also continually negotiate the process of interacting, accounting for the actions of ourselves and others, and negotiating the next action (Stacey, 2001). One way that we seek to include or exclude ourselves from groups is in the way we communicate. All social institutions, then, whether academic discipline or organization, "…are patterns of power relations sustained by ideological themes of communicative interaction and patterns of inclusion and exclusion in which human identities emerge" (Stacey, 2003, p. 329).

Thus, when two or more communities come together issues of identity and power are intrinsic to their communication processes. In the case of developing academic disciplines, this can be seen in several ways. For example, disciplines can be fiercely territorial both in the sense of claiming an area of knowledge for their own and in the sense of contending that new knowledge can only be generated by legitimized insiders (Leggon, 2006). In addition, the control of outlets for publication and the competition for funds and status within the university system contribute to the power struggle involved in developing a discipline (Leggon, 2006). Cooperation between disciplines can be recognized as fraught with complexity when we consider these issues.

THE MULTIDISCIPLINARITY OF KM

A quick perusal of the range of journals publishing articles in KM soon verifies KM as a multidisciplinary field. Anecdotal evidence is supported by statistical studies. Searching only articles containing the keywords "knowledge management", Gordon and Grant (2005) looked at the themes that appeared in KM articles up to 2004 (using the ABI/Inform database) and found that while "information" and "technology" were the keywords that dominated the field, emergent themes included "strategy", "organizational learning", "culture", "human resource management" and their own theme of interest, "power". Repeating their search with the date parameter extended to 2007 indicates the same trends are continuing. That is, an Information Systems (IS) approach to KM is still dominant but other areas feature strongly, including the addition of

"communication" which appears in about 10% of articles (see Figure 1). It seems that KM has become a concern of many fields and many dimensions of organizational life.



*Search totals results from "organisational learning" and "organizational learning"
**Searched using "human resource management"

Figure 1. Comparison of Concepts/Themes in KM Literature

(from sample of 5191 articles containing keywords 'knowledge management' between 2002 and 2007)

Though focusing on academia's sluggish adoption of KM into undergraduate IS courses, Grossman's (2007) findings also note the pervasiveness of KM as a concern to organizations. Documenting Dalkir's (2005) and Stankosky's (2005) lists of areas they consider directly related to KM, Grossman notes that "knowledge management draws from many different disciplines and can be applied to numerous areas of inquiry" (2007, p. 36). This is further supported by his analysis of doctoral dissertations in KM which shows it being studied within disciplines as diverse as education, health sciences and engineering. A study of the paradigms of KM also comments on its multidisciplinarity: "The development of KM theory and praxis continues to involve a wide range of disciplines and contributors" (Hazlett, McAdam and Gallagher, 2007, p. 32).

The multidisciplinary interest in KM augurs well for the future of the field in terms of continued research, offering a plurality of perspectives and therefore a sound basis for debate (Hazlett et al., 2007). However, multidisciplinarity is not without its problems. The first of these is increased fragmentation of the field, a "silo effect". Scholars in IS study knowledge sharing and publish in IS journals (see for example Bélanger and Allport, 2008) while scholars in communication study knowledge sharing and publish in communication journals (see for example Child and Shumate, 2007). Never the twain shall meet; or, at least, chances are that these articles will mainly be read within their discipline. More and more subtopics appear within the field and more and more approaches are used to study them as scholars bring theories from their own disciplines to bear on KM issues. The result is in an apparent lack of direction, cohesiveness, and certainty in the field (Hazlett et al., 2007).

A subsequent problem that arises from a multidisciplinary approach is the entrenchment of perspectives. As the call for papers for the KM track of this conference notes, much of the literature in KM has been concerned with defining different types of knowledge. The communicative, epistemological and ontological practices by which disciplines are defined means that scholars working in those disciplines embrace certain perspectives. Such perspectives are crucial to maintaining

membership and authority in their community. It is not surprising then, that IS scholars tend to maintain a working concept of knowledge which sees it as reified, objective and able to be codified, captured and converted, while communication scholars see knowledge as negotiated, abstract and a process. As Leggon (2006) notes:

> *This academic territoriality can be an obstacle to the conduct of inquiry when strict adherence to the language and perspectives of one's discipline precludes establishing some common ground with researchers from different disciplines from which creative research might develop.* (p. 3)

If KM is to address complex issues, avoid reinventing the wheel, and expand its boundaries, as the call for papers to this track suggests, then, it needs to become interdisciplinary, not multidisciplinary. Interdisciplinarity allows a mode of inquiry that draws from the knowledge bases of many disciplines, enabling scholars to see through different eyes and to ask not only new questions but old questions in new ways (Leggon, 2006). Getting researchers from different disciplines to talk to one another, rather than talk past one another, is a challenging goal. However, it is not out of reach. What follows is a two-fold approach to achieving interdisciplinarity for KM.

COMMUNICATION

Given that one of the defining characteristics of a community of practice, and therefore an academic discipline, is its communicative practices, then an understanding of communication seems imperative to being able to interact across disciplinary boundaries. CRP, with its focus on communicative and knowledge-generating processes, helps to illuminate interdisciplinary communication. It is predicated on the idea of communication as a series of gestures and responses, a continually emergent and self-organizing process of relating (Stacey 2001, 2003). It is an action-based account of communication that is focused on the present, but also allows for the influence of the past in the form of established patterns and the ongoing construction of identity through inclusion and exclusion. Differences between communities of practice such as methods, discourse, and routines, are often cited as making communication between them difficult. If we accept that these differences are not intrinsic to the communities and their members, but merely established habitual ways of communicating, often shaped by the use of communicative tools (such as vocabularies and technology), then they become not fixed but able to be transformed.

For example, CRP has been seen in the medical literature as a way of facilitating the practical goal of relationship-centred care, that is, as a way of understanding and enhancing relationships between apparently disparate groups such as doctors and patients, multi-disciplinary health team members, and health professionals and the community (Suchman, 2006). CRP is seen to provide insight into how relationship patterns are created moment to moment. Concentrating on this process takes the emphasis away from the dominant idea of communication as the transmission of information, focusing participants on increased collaboration and greater self-awareness (Suchman, 2006).

CRP can similarly help academics to recognize typical patterns of communicating and consider how they might be reconfigured. When scholars write and publish articles, or talk to one another, they are gesturing to their audience, hoping for a response. When they become involved in an interaction, they bring to it expectations of their own and others' performance. They also arrive with a set of habits, routines, beliefs and so on that are not things "stored" in their minds, but predictable couplings of gesture and response that are typically reproduced in interaction (Stacey, 2001). As academics evoke and provoke responses in one another the opportunity for new understanding or knowledge arises. Some small, unexpected response may resonate and affect the next gesture. Therefore, while academic communication is highly patterned and structured it is also potentially transformative. The chance for transformation is reduced, however, when desire to maintain identity within a community entrenches one's patterns of communicating and knowing so that one is not open to unexpected deviation.

The emergence of new patterns in communicating is dependent on two factors (Suchman, 2006). First, participants must be responsive. That is, they must be aware of each other's ideas and feelings and be aware of how that might constrain their responses. They need to understand that meaning is not the property of the gesture itself but depends upon the response to the gesture, that is, it arises in interaction. In addition, participants must be capable of forming new associations between themes. Gestures and responses ideally will be interpreted with an open mind and a willingness to deviate from comfortable previous patterns. The nature of academic enquiry means that these first two conditions are often met. Communicating through a series of gestures and responses and a willingness to explore new ideas are at the heart of most published research.

It is the second factor – diversity – that is of concern to the future of KM. The wider the variety of perspectives that can be introduced into a conversation, the greater the opportunity for new associations to form and reproduce into new patterns of meaning (Suchman, 2006). Transformation is more likely to occur when participants are disparate and small differences can be amplified into major discontinuous changes in understanding (Stacey, 2001). The problem with working in a multidisciplinary way is that diversity can suffer. The gestures and responses occur within the confines of the discipline and are inextricably connected with issues of identity and power. This is understandable, as there is a conflict between diversity and responsiveness (Suchman, 2006). The more we have in common with the people we communicate with the greater the shared understanding, whereas when widely divergent participants converse the chances of talking past one another increase.

From a CRP perspective, the process of generating knowledge, however, necessarily involves tension and anxiety (Stacey, 2001) because it is in the disruption to established patterns (and the accompanying stable identity and power relations) that new patterns (with their unstable identity and power relations) emerge. "It is in their struggling to understand each other in fluid, spontaneous conversational exchanges that people create new knowledge" (Stacey, 2001, p. 182). Novelty and innovation arise when new self-organizing patterns emerge. To foster the emergence of possibility for transformation of patterns, parties must at once feel secure in their identity yet comfortable with change.

Nevertheless, conversations that are paradoxically both cooperative and conflicting are not easy to manage. First, misunderstanding is common. This may lead to frustration and stress, resulting in participants wanting to withdraw from the interaction. Second, when a conversation has the potential to disrupt the everyday patterns of being, it also has the potential to threaten continuity of identity, leading to anxiety in the participants. Finally, conversations that offer the possibility of transformation often threaten the established power relations. Those in power may seek to close such conversations down as the threat of a shift in power becomes manifest (Stacey, 2001). These communicative tensions can be addressed in relation to KM, however, by reconceptualizing KM as a boundary object between disciplines rather than a discipline in itself.

BOUNDARY OBJECTS

Boundary objects have appeared in KM literature as a means of facilitating communication between communities of practice. Boundary objects are typically organizational artifacts (such as prototypes, design drawings, and reporting forms) that allow activity to occur despite the basic incommensurability of groups involved in a task (Wilson and Herndl, 2007). A boundary object allows people from different communities to better understand one another as they are "both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (Star and Griesemer, 1989, p. 393). They have featured prominently in IS literature, where applications and tools are seen as spanning boundaries.

Boundary objects have several purposes. First, they are seen as stores of knowledge. Traditional KM sees systems, databases, artifacts, and texts as stores of knowledge and as potential boundary objects (Koskinen and Pirinen, 2007). Second, boundary objects are seen as tools to assist the transfer of knowledge, a way for communities of practice to share their mental models. Where language fails, tangible objects may succeed. Thus when an engineer and a machine assembler have the same name for different parts of a machine they talk past each other. However, when the object in question can be held up for both to see, they are able to understand one another (Bechky, 2003). Finally, boundary objects have also been seen as tools to facilitate creation of knowledge (Carlile, 2002; Bechky, 2003; Koskinen, 2005) and it is in this role that the concept has usefulness for KM.

This paper proposes that the field of KM itself can be seen as a boundary object and a tool for the generation of knowledge. Though they are usually tangible objects, abstract concepts such as metaphors can also function as boundary objects (Koskinen 2005). If we consider KM as a boundary object it becomes a site where interdisciplinary conversations can take place. Boundaries between communities of practice or disciplines are seen as lines of demarcation, and boundary work in a communicative sense has focused on how groups struggle to differentiate themselves (Wilson and Herndl, 2007). But boundaries can also be seen as sites of integration, where "social, organizational and discursive" space is shared (Wilson and Herndl, 2007, p. 131). That is, boundaries can be seen as the permeable membrane between communities.

When members of different communities of practice come together, they bring expectations of how communication will occur based on their own patterns of communicating and their anticipation of how others will communicate.

> *In the living present, individuals are interacting with each other in their own local situations. The basis of their action is their current expectations of the future, conditioned by their accounts of the past, where those accounts are*

> *influencing expectations for the future and expectations of the future are influencing the current accounts of the past.* (Stacey, 2003, p. 330)

These patterns are complex because, from a CRP standpoint, communication generates individual and social identity, as well as knowledge. KM as a boundary object can bring together disparate communities and make visible their similarities and differences, enabling them to communicate in a way that is not entirely defined by previous patterns, habits and routines. By providing a site where simultaneous similarity and difference are accentuated, KM can disrupt entrenched patterns of communication that are so closely tied to disciplinary identity.

The co-construction of boundary objects has been identified as key to their success (Miller, 2005). As various disciplines meet at the site of KM the opportunity exists for them to develop the field together. The boundary object (KM) provides a tangible focus for the parties, allowing them to see how their own ways of being and patterns of knowing are contingent on their identification with a particular discipline and its interaction patterns and expectations. When members of two communities come together with little understanding of their own and one another's assumptions and communicative expectations, the co-construction of a boundary object can provide a focal point for weakening the lines of demarcation. If an interdisciplinary approach is taken, parties are able to consider the context that has produced their own position, how their analysis of the topic under consideration might compare to any other party's, and how their ideas might affect other parties (Wilson and Herndl, 2007). A boundary object allows a community to see where it differs from the other, where it overlaps with the other, and how it can take the opportunity for transformation with the other, all in the process of interaction.

Using a boundary object, disparate groups are able to communicate cooperatively rather than adversarially, because the differences in ways of being are acknowledged at the outset and identity within one's primary community is not threatened. However, as CRP acknowledges, communication is rarely fully co-operative. As people negotiate and account for their actions in conversation they simultaneously sustain and shift power relations (Stacey, 2001). A boundary object can, nevertheless, provide a site at which conflict can occur between disciplines in such a way that it is focused on the object rather than the participants. It acts as an entity in the relating process, providing an area for negotiation that does not directly threaten the subjective identity of either party.

New knowledge is created by the disruption of old patterns of knowing. To genuinely disrupt patterns there is a need to embrace not only responsiveness and a variety of themes but also diversity. Scholars need to be willing to threaten their professional self-identity by disrupting their patterns of communication and being prepared to see through others' eyes. Reconceptualizing KM as a boundary object rather than an emerging discipline allows academics to maintain their professional identities while simultaneously engaging in new ways of communicating. By considering KM as a boundary object between disciplines, the opportunity to engage in truly creative and interdisciplinary research is provided. Each contributor can bring a unique history or difference to the field but there is also common purpose, so there is identification with the other party. Scholars of various disciplines can meet in a neutral, democratic space and attempt to talk to each other rather than past each other.

CONCLUSION

KM is currently a multidisciplinary field and IS is one of its main contributors. However, it is questionable how far the multidisciplinary approach can take KM. The fragmenting of KM into communities of practice that are divided from one another in combination with the entrenchment of perspectives and practices that make communicating across divisions difficult, suggest multidisciplinarity may stagnate KM.

The challenge, then, for everyone participating in KM is to engage in interdisciplinarity. Before interdisciplinarity can be successful, though, there must be an awareness of the role of communication. Communicative competency needs to be taken more seriously. Scholars need to be aware that in conversations transformation and reproduction possibilities are always present, and transformations can occur at the local level but then be amplified throughout the field in self-organizing patterns (Luoma, Hämäläinen, and Saarinen, 2007). Change is by definition a shift in patterns of interaction, and given that identity is emergent in interaction change often challenges people's group and self identity in a way that produces anxiety (Stacey, 2001). KM could be said to be about making people realise that change is an inevitable part of human interaction. If we expect the unexpected, then our level of anxiety and our defensiveness of our identity in relation to the inclusion/exclusion dynamic declines (Stacey, 2001).

Reconceptualizing KM as a boundary object through which disciplines can communicate will take more than good intentions. It will also need practical measures. While we could argue that KM conferences provide a forum for interdisciplinary interaction, in practice the conferences themselves tend to be specialized or located within defined paradigms. For example, the International Conference on Knowledge, Culture and Change tends to take a people-centered view (the organic paradigm) of KM while the International Conference on Technology, Knowledge and Society tends to be more technology driven (the computational paradigm) (Hazlett et al., 2007). In publishing, often journals within disciplines will have special issues devoted to KM but while this introduces KM to that discipline it does not really help to engage scholars across disciplines. Specialized KM journals do provide an outlet for work from several disciplines, but again the tendency is for the journal to subscribe to one paradigm or another. Interdisciplinarity will need practical impetus. Conferences could offer streams that invite interdisciplinary work. They could also hold forums that deliberately create conversations between disparate scholars. Individually, we can make the effort to share research methods, perspectives, theories and concerns and enrich the fabric of KM. If each scholar working in KM engages another scholar from another area in dialogue the process will begin.

While this paper has focused on the meta-level of the field of KM, the ideas put forward also can be translated into organizations. Anywhere there are multi-disciplinary teams we need to consider how effective communication and knowledge generation can be encouraged despite the issues of identity and power inherent in communicating across disciplines. Knowledge creation is a process and CRP helps to focus on what researchers are doing and how they are doing it. The challenge for the IS community is to reflect on its own participation in KM as it considers the future direction of the field.

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